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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/663,005

09/15/2003

Pai-Fu Hung

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05/03/2007

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EXAMINER

HO, HUY C

ART UNIT

PAPER NUMBER

2617

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/663,005

Applicant(s)

HUNG ET AL.

Examiner

Huy C. Ho

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 03/10/2007 have been fully considered but they are not persuasive.

The argued features, i.e., a wireless LAN device, such as access point, a gateway, a wireless hub, switch or a router, having a smart antenna system, which comprises a plurality of transceiver modules, which in turn are installed with plurality of omni directional antennas in one-to-one manner (i.e., one directional antenna is coupled to one WLAN transceiver module) in order to service plurality of users in a cell, reads upon Ofek (2004/0196834) and further in view of Nguyen (2003/0181221) as follows.

Ofek is discussing a wireless system comprising a base station or a access point, an antenna system with plurality of directional antenna sectors, these antenna sectors coupled to a control unit having transmitting and receiving controllers for transmitting and receiving data packets in a cell, also, Ofek discusses the antenna system arrangement with a plurality of antenna sectors in selected configuration of six sectors with cylindrical arrangement, a cubic configuration with six for antenna sectors, a double pyramid, or octahedron, configuration with eight antenna sectors, and a polyhedron-pentagondodecahedron-configuration with twelve antenna sectors, is used for minimizing interfering signals when large number of mobile users concurrently communicate with the base station/access point, thus Ofek is disclosing special arrangement of antennas in a WLAN device is used in purpose for serving plurality of users in a cell. Ofek does not specifically show the one-to-one arrangement of directional antennas on the transceivers, however, it is noticeable Ofek teaches the multiple of transmitting/receiving controllers (this fact inherently discloses the transceivers) are coupled to multiple directional antennas for in selected configuration of six sectors with cylindrical arrangement for purpose of eliminating interference in a cell when a large number of users concurrently communicate with the base station/access point. Ofek, is now modified by Nguyen to disclose the setup of one-to-one correspondence as one

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antenna is coupled to one transceiver, therefore, this disclosing a plurality of transceiver modules, which in turn being installed with plurality of omni directional antennas in one-to-one manner.

As a result, the argued features are written such that they read upon the cited references.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. **Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ofek et al. (2004/0196834) and further in view of Nguyen (2003/0181221).**

Consider claim 1, Ofek teaches A WLAN (Wireless Local Area Network) device having a smart antenna system, comprising:

a plurality of WLAN transceiver modules (see figures 1, 2, 4 and 5, pars [28], [75], [89]-[90]);
and

Ofek fails to teaches a plurality of directional antennas, respectively installed on said WLAN transceiver modules in an one-to-one correspondence, wherein each of said array antennas is composed of a plurality of omni-directional antennas, and the radiation patterns of said array antennas are controlled to be directional radiation patterns, and each of said array antennas is responsible for the communication of a plurality of users in two opposite cells, however, it is noticeable Ofek discloses each of array antennas is coupled to a selected one of transmitting/receiving controllers for covering calls in different cells (pars [9], [15], [28]). In an analogous art, Nguyen teaches a plurality of array antennas, respectively installed on said WLAN transceiver modules in an one-to-one correspondence, wherein each of said array antennas is composed of a plurality of omni-directional antennas, and the radiation patterns of said array antennas are controlled to be directional radiation patterns, and each of said array antennas is responsible for the communication of a plurality of users in two opposite cells (see the abstract, figures 2A and 3, pars [22]-[23], [27], describing multiple RF units play roles of transceivers that are coupled with multiple antennas for transmitting/receiving information in a WLAN). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify and incorporate Nguyen teachings into Ofek invention in order to have the feature a plurality of directional antennas, respectively installed on said WLAN transceiver modules in an one-to-one correspondence, wherein each of said array antennas is composed of a plurality of omni-directional antennas, and the radiation patterns of said array

antennas are controlled to be directional radiation patterns, and each of said array antennas is responsible for the communication of a plurality of users in two opposite cells.

Consider claim 7, Ofek teaches A WLAN device having a smart antenna system, comprising:

a plurality of WLAN transceiver modules (see figures 1, 2, 4 and 5, pars [28], [75], [89]-[90]);
and

Ofek fails to teaches a plurality of array antennas, respectively installed on said WLAN transceiver modules in an one-to-one correspondence, wherein each of said array antennas is composed of a plurality of omni-directional antennas, and the radiation patterns of said array antennas are controlled to be directional radiation patterns, and each of said array antennas is responsible for the communication of a plurality of users in two opposite cells, however, it is noticeable Ofek discloses each of array antennas is coupled to a selected one of transmitting/receiving controllers for covering calls in different cells (pars [9], [15], [28]). In an analogous art, Nguyen teaches a plurality of array antennas, respectively installed on said WLAN transceiver modules in an one-to-one correspondence, wherein each of said array antennas is composed of a plurality of omni-directional antennas, and the radiation patterns of said array antennas are controlled to be directional radiation patterns, and each of said array antennas is responsible for the communication of a plurality of users in two opposite cells (see the abstract, figures 2A and 3, pars [22]-[23], [27], describing multiple RF units play roles of transceivers that are coupled with multiple antennas for transmitting/receiving information in a WLAN). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify and incorporate Nguyen teachings into Ofek invention in order to have the feature a plurality of array antennas, respectively installed on said WLAN transceiver modules in an one-to-one correspondence, wherein each of said array antennas is composed of a plurality of omni-directional antennas, and the radiation patterns of said array antennas are controlled to be directional radiation patterns, and each of said array antennas is responsible for the communication of a plurality of users in two opposite cells.

Consider claim 14, A smart antenna system, comprising:

Ofek fails to teaches a plurality of directional antennas, respectively installed on a plurality of WLAN transceiver modules in an one-to-one correspondence, wherein said directional antennas are equally spaced apart in an annular array, and each of said directional antennas is responsible for the communication of a plurality of users in a cell, however, it is noticeable Ofek discloses sectorized directional antennas are coupled to transmitting/receiving controllers in a cylindrical configuration for best coverage of a cell (see figure 6, pars [9], [15], [28], [35]). In an analogous art, Nguyen teaches a plurality of directional antennas, respectively installed on a plurality of WLAN transceiver modules in an one-to-one correspondence, wherein said directional antennas are equally spaced apart in an annular array, and each of said directional antennas is responsible for the communication of a plurality of users in a cell (see pars see the abstract, figures 2A and 3, pars [22]-[23], [27]). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify and incorporate Nguyen teachings into Ofek invention in order to have the feature a plurality of directional antennas, respectively installed on a plurality of WLAN transceiver modules in an one-to-one correspondence, wherein said directional antennas are equally spaced apart in an annular array, and each of said directional antennas is responsible for the communication of a plurality of users in a cell.

Consider claims 4, 11 and 17, the WLAN device having the smart antenna system according to claims 1, 7 and 16, Ofek, as modified by Nguyen, further teaches comprising a CPU (see figs 4-9, pars [15], [53], [118], [127], [216]).

Consider claims 5, 12 and 18, the WLAN device having the smart antenna system according to claims 4, 11 and 17, Ofek, as modified by Nguyen, further teaches comprising a plurality of interface elements used for respectively connecting said CPU to said WLAN transceiver modules (see figs 4-9, pars [15], [53], [118], [127], [216], [221], [263]-[265], [291]).

Consider claims 6 and 13, the WLAN device having the smart antenna system according to claims 5 and 12, Ofek, as modified by Nguyen, further teaches wherein each of said interface elements is selected from a group consisting of a PCI (Peripheral Component Interface), a mini PCI, PCMCIA (Personal Computer Memory Card International Association) and a Cardbus interface (see pars [216], [291]).

Consider claim 8, the WLAN device having the smart antenna system according to claim 7, Ofek, as modified by Nguyen, further teaches wherein said omni-directional antennas are a plurality of dipole antennas (see par [86], [240]).

Consider claims 2, 9 and 15, The WLAN device having the smart antenna system according to claims 1, 7 and 14, Ofek, as modified by Nguyen, further teaches wherein the specification of each of said WLAN transceiver modules is selected from a group consisting of IEEE802.11a, IEEE802.11b, IEEE802.11g and an arbitrary combination thereof (pars [11], [77]-[78], [99]).

Consider claims 3, 10 and 16, The WLAN device having the smart antenna system according to claims 1, 7 and 14, Ofek, as modified by Nguyen, further teaches wherein said WLAN device is selected from a group consisting of an access point, a gateway, a wireless switch, a wireless hub, a wireless switching hub and a wireless switching router (pars [31], [77], [91], [226]).

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH**

shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huy C. Ho whose telephone number is (571) 270-1108. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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